

Backyard Biology: Josh and Jasmine Broth (J-broth)



Low Budget Lab Project by GSUiGEM:
a collaboration with the
Uniandes Colombia Team for iGEM 2015

Materials & Methods

Homemade LB Recipe per 1 Liter of dH₂O

- 5g Marmite Yeast Extract
 - 10g NaCl
 - 5g Bulk Supplements Amino Acids Powder
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- We grew XL1-Blue e. coli cells in liquid culture of lab grade luria broth and J-broth. The media was either autoclaved or microwaved for 8 minutes at 650 Watts before the cells were added.
 - We then made competent cells out of XL1-Blue e. coli cells that were grown in each type of media following the Inoue method (Inoue, 1990) and calculated the transformation efficiency for comparison

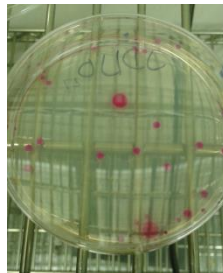


Growth Comparison

LB Type	OD ₆₀₀ Diluted by 10
Lab Autoclave	0.122
Lab Microwave	0.185
J-Broth Microwave	0.098

Figure 1. This table shows the difference in growth of XL1-Blue e. coli cells after overnight growth.

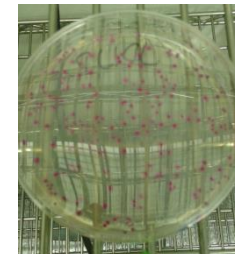
Image 2. Plate with transformed e. coli grown in microwaved J-both.



LB Type	Transformation Efficiency (CFU/microgram)
Lab Autoclave	1.2e6
Lab Microwave	3.16e6
J-Broth Microwave	1.17e6

Figure 2. This table shows the difference in transformation efficiency in XL1-Blue e. coli cells being grown in different media.

Image 3. Plate with transformed e. coli grown in microwaved lab grade LB.



Price Comparison

Lab grade LB Powder (1L)

LB Powder (Sigma-Aldrich) - \$141.50 for 1000 grams

$\$0.1415/\text{gram} \times 25 = \3.538

Total = \$3.538

Lab Grade LB Individual Ingredients(1L)

Tryptone (Sigma-Aldrich) - \$615 for 1000 grams

$\$0.615/\text{gram} \times 10 = \6.15

Yeast Extract - \$190 for 1000 grams

$\$0.19/\text{gram} \times 5 = \0.95

Sodium Chloride (Sigma-Aldrich) - \$71.50 for 1000 grams

$\$0.0715/\text{gram} \times 10 = \0.715

Total = \$7.815

J-broth(1L)

Bulk Supplements Amino Acids - \$16.96 for 250 grams

$\$0.067/\text{gram} \times 10 = \0.67

Marmite Yeast Extract - \$12.63 for 500 grams

$\$0.025/\text{gram} \times 5 = \0.125

Sodium Chloride (table salt) - \$8.28 for 1000grams

$\$0.0083/\text{gram} \times 10 = \0.083

Total = \$0.275

**Savings from LB Powder =
\$3.263/liter**

**Savings from LB Ingredients =
\$7.54/liter**